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It is recommended that the subject suggestion be declined. There are a number of factors involved but the major problems are related to the optics of the Zoom 70 and the Zoom 240.

25X1 a. The [redacted] 15X filars are mated as far as optical characteristics to [redacted] 25X1
25X1 Zoom 70 and could very well prove incompatible with either the [redacted] Zoom 240 25X1
25X1 or the [redacted] Zoom 70--where the zoom element serves as the objective lens.
25X1 b. Both the [redacted] Zoom 70 and the [redacted] Zoom 240 have convergent optical paths; i.e., the optical paths for the right and the left eye come together at a point on the [redacted]--the focal point of the instrument. Because of this characteristic, the left and the right portions of the field of view are not necessarily located on the same plane; i.e., the filar eyepiece is perpendicular to the axis of the lens, while the image is perpendicular to the stage. As a consequence, you would end up observing what is essentially an oblique. It is this characteristic, combined with the very small depth of field in a [redacted] Zoom 240, that requires the tilting eyepieces. These tilting eyepieces, by the way, present problems if you attempt to mount a filar. 25X1

c. The optical convergence in the Zoom 240 and Zoom 70 ceases to be a problem when the rhomboids are in place since this splits the optical path, and the objectives of these lenses are then perpendicular to the surface being viewed. This does, however, introduce objective lenses of different characteristics so that if a filar system was to be utilized it would have to be specially designed and mated to each rhomboid package involved; i.e., there would have to be three separate filar eyepieces developed for the Zoom 70 and 240 and for the versatile stereoscope.

25X1 d. The [redacted] versatile stereoscope has an additional problem in that the image rotation is built into the eyepieces. We are not certain that these rotational eyepieces could handle the bulk of the filar mechanism or that the two would prove optically compatible. However, this can only be determined by extensive investigation. (continued on attached sheet)

Not applicable

Not applicable

Declass Review by NIMA/DOD

25X1 [redacted] Research & Engineering Division, [redacted]

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Subject: Suggestion Evaluation Report

(Reasons for Recommendation - continued)

a. A few years back, we developed a projected scale micrometer which mounts on the dove tail slide and permits the type of measurement required in the suggestion. This combined with the fact that the filar would have to be re-calibrated to a new scale factor each time magnification was changed would tend to restrict the operational usefulness of such an approach.

25X1 DSD has serious reservations regarding measurement at the eyepiece where zoom lenses are involved. However, the same reservations are equally true of the [redacted] High Power and other like instruments which are currently in use.

As a consequence of these observations, it is recommended that the suggestion not be accepted and that the suggestor be informed of the existence 25X1 of the projected scale micrometer and [redacted] Dual Power Measuring Microscope since they appear to satisfy the operational requirement. If not, we could develop three specialized filars for these instruments, but they would have to be used with the rhomboids on.

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